

VENEREAL DISEASE AS A CAUSE OF INFERTILITY AND STERILITY: ASSESSMENT AND TREATMENT*

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Although venereology is now recognized as a specialty requiring and indeed demanding the whole-time attention of those practising it, there are, on the fringes of the subject, a number of conditions deserving more than passing attention. Among these is infertility.

In every venereal disease clinic each week a cured patient will ask, "Is it all right for me to get married now?" or, "It won't affect my having children will it, doctor?" On what do we base our answers?

In men the verdict should be based on:

1. Tests of cure of the venereal condition: repeated negative blood tests and negative cerebrospinal fluid findings; no abnormal findings in the prostatic bead (spread and culture) or centrifuged urinary deposit.

2. A male fertility test. It is not good enough to examine a drop of semen under the microscope and announce the finding of motile spermatozoa. A proper assessment of fertility can be made only from a proper male fertility test performed on a properly delivered specimen. A masturbation or withdrawal specimen (following a few days without intercourse) is produced directly into a small glass pot and delivered at once or within the hour to the laboratory. A rubber sheath must not be used for collection. Waxing the inside of the container is unnecessary, nor need the specimen be kept warm. The tests need not be over elaborate in detail but should give: (1) volume; (2) degree and speed of autolysis; (3) viscosity (rough assessment); (4) numbers: low counts must be checked by repeating the test; it is just as wrong to rely on a single result proclaiming low numbers or azoospermia as to treat a patient for a solitary positive Wassermann reaction; low counts frequently result from full dosage or over-prolonged low dosage of sulpha-drugs, and recovery takes about twenty-five days; spermatogenic activity is also depressed by long continued posterior urethral, prostatic, and vesicle infection; (5) viability; (6) abnormal forms; (7) abnormal contents: pus, organisms, blood.

3. Potency. A man may be fertile but impotent, a state which sometimes results from severe venereal disease phobia. Where the latter verges on the obsessional type it is, of course, doubtful if it is wise to encourage reproduction.

In women the verdict is less easy to give, and in so far as a venereal disease clinic is concerned the reply is based on:

1. Tests of cure of the venereal disease condition: repeated negative blood tests and negative cerebrospinal fluid findings; negative urethral and cervical smears and cultures; absence of adnexal tenderness or thickening.

2. Proof that the Fallopian tubes have remained patent and are not sealed or blocked by inflammation or catarrh: several months should elapse before gas insufflation is tried for fear of stirring up or spreading a settling infection.

I consider that gas insufflation should be added to our tests of cure in the venereal disease department. The procedure is a perfectly safe and simple outpatient manoeuvre, and its routine application would make early treatment possible before tissue damage became organized and permanent.

What Constitutes Infertility

The average length of time elapsing in normal young couples between marriage and conception, when no preventive measures are employed, is three months. This figure rises gradually with the age of the female partner, in whom ovulation becomes less regular and certain, until at the age of 35 to 37 the time-lag is six to eight months. After three to six or eight months, depending on age, infertility may be diagnosed.

Syphilis as a Cause of Infertility and Sterility

Syphilis does not rank high among the causes of infertility or sterility, though it is always necessary to exclude it in the investigation of the childless couple. It is practically never the reason for non-conception, but should be suspected when repeated miscarriages or neonatal death occur. Again it is necessary to stress that a single positive Wassermann reaction is insufficient for an absolute diagnosis. The increasing practice of making antenatal blood tests and the similar investigation of most cases of spontaneous abortion and miscarriage have reduced to a minimum the undiagnosed cases.

There is no need to dwell upon the dramatic effects of penicillin treatment on the placenta and foetus or on the altered and improved prognosis even when treatment has been delayed to the last months of pregnancy.

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Apart from this, acquired syphilis is but rarely the cause of infertility: testes incapacitated by bilateral gummata have been restored to active functioning; syphilis of the ovary is unknown, and syphilitic salpingitis almost a legend. I have examined the semen in secondary syphilis on many occasions when searching for spirochaetes, and I have been astounded at the normality of the count during this generalized stage. Similarly I have been amazed at the normality of semen counts in advanced tabetics and ambulant, treated G.P.I. cases. In some tabetics impotence is the first noticed symptom, and this has twice been the reason for infertility among my cases.

A French airman contracted syphilis during the world war 1914-18 and was shot down over Germany soon after commencing treatment. He believed that the very few doses of salvarsan which had been given were sufficient and did not seek further treatment either from the Germans or on repatriation. At the beginning of the 1939-45 war he complained of impotence. He had just married, and the couple were desperately anxious to have a child as he was returning with other French officers to Vichy and certain internment. He was suffering from tabes, and his potency did not return during the few weeks of injections I was able to give him. I saw him recently in Paris. He had had much treatment but he was still impotent.

Potency may be restored by immediate and prolonged penicillin therapy, but in the past the condition was intractable and the patient remained impotent but not sterile, normal active spermatozoa being found in vesicle strippings. Artificial insemination could be used in such circumstances. In these patients, as in many paraplegics, intrathecal injections of 0.5 mg. of prostigmin will give an erection, and an ejaculation of normal semen one to two hours later.

Regarding the effect of congenital syphilis, I have performed fertility tests on nearly all male cases attending my clinics and have not yet found a low or abnormal count. Most of these cases have well marked stigmata and persistently positive Wassermann reactions. Many are married, with children. As to the women, I have found congenital syphilis to be the only positive finding in the investigation on a number of occasions. Obesity was a complicating factor in one patient, and in another, though previously adequately treated, minimal weekly chemotherapy broke a long sequence of miscarriages.

Gonorrhœa and Nonspecific Infections as a Cause of Infertility and Sterility

In Men.—Once the complications and sequelæ of gonorrhœa caused almost as many cases of infertility and sterility in men as in women. Now gonococcal epididymitis has become an infrequent complication

(eight times less frequent than nonspecific epididymitis in the army statistics), and stricture should in a generation become rare. Nonspecific epididymitis, too, appears to be lessening greatly in incidence, and I have seen very few cases since the war ended.

The main causes of male infertility are: (1) adolescent mumps, 5 per cent.; (2) cryptorchism, 15 per cent.; (3) gonococcal and nonspecific infection, 20 per cent.; (4) under-development or abnormal function of unknown cause, 60 per cent.

It is in the third group, accounting for 20 per cent. of cases attending the infertility clinics, that we are interested here.

Chronic Prostatitis.—Chronic prostatitis can affect male fertility in two ways:

1. By the admixture of pus and organisms to the semen. This has a devitalizing or poisoning effect, shown by decreased motility and viability of the spermatozoa which appear to be sluggish even when warmed; movement ceases early, frequently before the end of four hours. In addition many are non-motile on first being examined.

2. By depressing spermatogenesis from absorption of toxins into the blood stream, this being indicated by a low count of 30 to 50 million per ml. The effects on spermatogenesis of toxin absorption from a chronic focus of infection is very variable and capricious. Widespread tuberculosis seems to have little effect on fertility, while a pustular acne or sycosis barbæ may depress the count to 30 million. I rate chronic prostatitis and vesiculitis as serious causes of low counts deserving serious and persistent treatment.

Methods of Treatment.—Of course prevention is better than cure, and the three months now generally accepted of a test of cure allows not only for the exclusion of syphilis but also for repeated examination of prostatic beads, which should reveal neither pus nor organisms before the patient is discharged.

Treatment has not improved much.

1. Persistent "educated" prostatic and vesicular massage: too often an orderly simply sticks a finger in and wiggles it about. Massage promotes free drainage and allows penicillin and sulpha-drugs to penetrate to the infected glands and vesicles.

2. Repeated penicillin has little effect on chronic prostatitis but sulpha-drug courses do help. I have had excellent results from streptomycin in three serious cases with Reiter's syndrome, and believe it will, if large initial doses are used, be an additional method of treating chronic prostatic infection. Courses range from an initial dose of 2 g. of streptomycin sulphate and thereafter 1 g. every three hours for five doses, to the more prolonged method in which 2 to 3 and even 4 g. are given daily in divided doses for one week. The urine should be alkalinized. Streptococci and enterococci require maximum dosage. I have had no complications from the use of streptomycin in the limited number of cases in which I have been able to employ it. I have heard of failures, and am sure it will not be a panacea for all genito-urinary ailments.

3. Nonspecific protein therapy also has a place—"pyrolactin" or typhoid-protein injections. Ducrey bacillus vaccine (Dmelcos), which I retried after the war, proved unsatisfactory.

4. Intravenous injections of neoarsphenamine or mapharside often work well in posterior urethritis, for which washouts of mercury oxycyanide, phenyl mercuric nitrite, and instillations of 1-100 or stronger streptomycin are also useful.

All too often when every form of treatment (I have not given a complete survey) has been tried the patient is left with a persistent and resistant infection. These cases are rediscovered at sterility clinics. A further attempt is made to clear the infection. In some cases the infection is only slight but the spermatozoa count is lowered to 20-30 million per ml. and fails to respond to stimulation therapy. Biopsy reveals many tubules in which the spermatogenic layers are reduced to one or two in addition to the basement membrane. Artificial insemination with the husband's semen is useful in such cases. Fertilization would appear to result from the finding and surrounding of the ovum by an adequate number of vital spermatozoa. The numbers carry the requisite amount of hyaluronidase to soften the envelope of the ovum and thus allow a sturdy late-comer to penetrate and fertilize. Artificial insemination introduces an adequate number, unaffected by vaginal dilution and strife, and saves a very appreciable expenditure of energy on the part of the spermatozoa. It is in this type of case that a high percentage of success is achieved. But to many other cases additional help must be given.

1. Where the numbers are below 20 million per ml. concentration by centrifuging is indicated. High-speed centrifuging (3,000 revolutions per minute) gives a 2-300 per cent. pack but in my experience the results are not so good as when the low-speed hand-centrifuging is used (1,000 revolutions per minute).

2. Hyaluronidase may be added to reinforce the ferment content of the semen. This is obtained by vacuum freezing to powder form, roughly assayed, and dosage is empirical.

3. Fructose may be added to prolong and increase vitality.

4. Warming before insemination also increases activity.

Where there is an appreciable contamination with pus cells the spermatozoa must be washed before insemination. Normal saline is added and separated off after centrifuging, and the process is repeated once or twice.

Blockage of the Ejaculatory Ducts.—This occurs in a few cases of chronic posterior urethral and prostatic infection. Canalization from the posterior urethroscope is a technical possibility but in practice

extremely difficult. This opinion is shared by most urologists in England. The ejaculatory ducts often open low down on the *veru montanum* where it is quite impossible to get at them. Some have used air-distension urethroscopy and passed a flexible metal probe in, but the procedure is dangerous and only damage results. Wolbarst relies on syringing through the vasa and claims some success.

Vesiculitis.—Vesiculitis should be mentioned briefly as an intractable form of chronic infection often necessitating more than massage and parental therapy. Belfield's operation is occasionally of use. The vas is isolated and brought to the surface close to the root of the penis, and a vasa cannula is inserted, being left in for two or three days. Down the vasa mercurochrome, penicillin in saline, 1-100 streptomycin, or glycerine antiseptic solutions are introduced. At the end of a few days the vas is allowed to fall back into the depths of the wound, into which sulpha-penicillin powder granules are poured. I have seen spermatozoa in subsequent semen (when the operation has been bilateral), so, surprisingly enough, the procedure does not block the vasa.

On the whole I have resisted the temptation to take x-ray films of the vesicles in these cases, as I am greatly impressed with the danger in urethrogams and similar procedures. That four deaths have been reported in twenty-seven cases in the literature shows the ease with which the venous systems of the urogenital organs can be invaded with fatal result from embolism.

An interesting observation to be made in the course of vas surgery is that urine can be forced out of the stoma in a thin but quite strong stream during micturition. I have always believed that infected urine passing down the vas was the cause of epididymitis and vasitis, and I think this observation supports the theory. It should at any rate encourage us to warn all patients with gonococcal and nonspecific urethritis against straining, and to urge them to micturate frequently.

Vasitis.—Everyone can recall patients with gonorrhœa and nonspecific urethritis who have complained of pain in the groin. Palpation shows that the vasa are tender where they emerge from the inguinal canal and cross the pubic rami. Sometimes epididymitis supervenes, but frequently not. These cases should never be dismissed without a male fertility test, as frequently the inflammation becomes organized and the vas becomes blocked. I have now discovered many of these blockages at later operation, and I use a long flexible probe cannula to try to force a way through. If the block appears solidly impassable, excision and end-to-end anastomosis

should be done. This is by no means impossible, being no different from reconstitution of the vas in those forcibly sterilized by the Germans in concentration camps.

Epididymitis and Epididymo-orchitis.—It would seem probable that the advent of the sulpha-drugs is the prime cause of a decline in the incidence of that distressing condition, nonspecific epididymitis. The frequent relapses add each time to the sclerosis until the whole epididymis, from pole to pole, is a fibrous mass grating harshly to the knife, exhibiting not a single tubular loop or a drop of semen. Such a condition, if bilateral, is hopeless. Nor do I think that multiple incising of the epididymal capsule in the early stages can improve the results. In gonococcal epididymitis the upper pole frequently escapes complete destruction and subsequent sclerosis affects only the lower pole. This leaves the way open for reconstruction operations. When the condition is more severe and epididymo-orchitis supervenes the whole of the epididymis is involved, and part of the body of the testis. Such a condition calls for surgical intervention if atrophy and destruction are to be avoided. The hydrocele should be drained and the epididymitis relieved by multiple incisions. Modern practice is to avoid incising the body of the testis. Walker advocates incision of the epididymis in all cases, and it may well be that this procedure, which could do no harm, gives better results than expectant treatment. Suffice to say that the vas, which is free to swell without strangulation, is rarely blocked, except near the external ring, in contrast to the tightly encased epididymis which always suffers. On the other hand, the epididymal tubule is a far sligher and more delicate structure and more easily blockable. At the conclusion of the operation the cord can be infiltrated with proctocaine, which gives lasting relief from pain.

Whatever the treatment the end result of bilateral epididymitis is usually sterility. Rarely does the patient appreciate this, and so he marries in ignorance, bringing great unhappiness to his wife and himself.

I have now dealt with a very great number of these cases and urge that a male fertility test should be done and an explanation given to all of them before they leave the clinics. After a lapse of a number of years they appear at the infertility clinics for investigation. Quite often the history is clear and decisive; almost as often it is doubtful and clouded by time, which is surprising in such a painful condition. The male fertility test reveals azoospermia and should be repeated after a week's sexual abstinence. When this second test gives the same result, and if the vas can be palpated on each side, biopsy of

the testis or testes is the next procedure. Gross alteration in the testes can be deduced from finding atrophy and complete softening, but in the majority of cases palpation gives little trustworthy information.

Biopsy is a simple and unharmed diagnostic procedure. It is performed under pentothal anaesthesia, which is preferable to a local anaesthetic as the surgeon is able to take a firmer grip of the testes to hold during incision and to squeeze out tubules. Open operation is better than puncture, which may be followed by a hæmatocele.

The sections should reveal no increase in interstitial tissue and there should be many tubules visible, most showing all stages of spermatogenesis up to spermatocytes, spermatids, and spermatozoa. It is remarkable that this picture can be obtained years after the block, for it is the rule for a secretory gland or organ to atrophy when its duct is permanently blocked.

A reconstruction operation can now be done. Needling of the epididymis has been tried, and on occasion I have drawn off 2 or 3 cubic millimetres containing motile spermatozoa, which were inseminated at once. I have, however, never had a good result, which may be due to the fact that the spermatozoa had not matured as they are supposed to do in the epididymis. This maturation must be more a time process than due to external influences, for by-passing the epididymis does not prevent fertility. Epididymo-vasostomy is then the only choice and offers a reasonable prospect of success if meticulous care is paid to technique.

After exposing the vas and head of the epididymis, the patency of the former is tried by passing along a nylon suture or by injecting 20 ml. of saline. Next an oval incision is made in the covering layers of the upper pole of the epididymis, revealing the loops of the tubule, which should contain spermatozoa in a milky fluid. For the actual anastomosis tantallum wire sutures are used, one of which threads from the vas into an epididymal loop and again into the vas and out through scrotal tissues and skin near the root of the penis. This is pulled tight and not removed until the ninth or tenth day.

In Women.—In women venereal infection, gonococcal or nonspecific, remains one of the most important causes of infertility or sterility. Chronic cervicitis cannot but lessen the chances of conception and ranks high among the causes of infertility or sub-sterility. Salpingitis, if unilateral, is a considerable hindrance; if it is bilateral it is an almost irrevocable cause of sterility. Early and efficient treatment is the only way to prevent these two complications caused by upward spread; but while

it has been possible to educate men to attend for treatment at once, thus avoiding complications, women delay seeking medical advice. Better contact tracing and treatment have done much to improve the situation.

Contact Tracing.—Many women do not realize they are infected until informed by a later contact, and they therefore do not seek early advice. Others wait until after the next period hoping that whatever discomfort, irritation, or increased discharge they notice will then disappear. Improved contact tracing has, of course, led to early treatment in a larger number of cases, but much attention should also be given to dispelling this "wait until after the next period" myth, for it is precisely at this time that the upward spread of infection occurs.

Treatment.—Penicillin and sulpha-drugs singly have limited the upward spread of infection in many cases, but I believe that for women they should be given together. There is a tendency, greatly to be deprecated, to give penicillin alone when gonococci have been found, but often the residual cervicitis and salpingitis are due to bacterial fellow-travellers that are better attacked by chemotherapy than by biotherapy.

This is the best place to stress the importance of rest at the time of the menstrual period, and also the importance of repeated vaginal examinations to exclude adnexal involvement. Tubal tenderness, if discovered early, can be treated, and blockage can be prevented.

Chronic Cervicitis as a Cause of Infertility.—A childless marriage often results from two factors combined—a subnormal spermatozoa count and chronic cervicitis. Both are causes of sub-fertility; together they cause sterility. A "cervical barrier" may be reasonably suspected when there is gross and obvious infection, but usually the condition is much less obvious and attention is only called to it when routine tests, including tubal insufflation and endometrial biopsy, have proved normal. A post-coital test (which should be performed at or near the fertile date) will show few or no spermatozoa, and those that are present will be sluggish or non-motile. The impermeability of this cervical secretion can be watched under the microscope after putting semen and cervical mucus together upon a slide.

Investigation of "cervical barrier" cases show one of four conditions: (1) complete absence of mucus—an oestrogen deficiency; (2) the cervical os may be blocked by a plug of thick opaque and tenacious mucus; (3) the lower cervical canal may contain a bluish white watery secretion in which are to be found many pus cells and organisms or a

frank mixture of pus and mucus; (4) an erosion may or may not be present, depending on the duration of infection.

While the two first conditions respond to stilb-estrol therapy, much more is needed when infection is present. I consider cervical paints useless and just a colourful waste of time. On the other hand diathermy coning, leaves a smooth, scarred canal with no chemottractive secretions, thus replacing one barrier to fertility by another. Between these two extremes lies effective treatment which should consist of:

1. Repeated speculum-blade massage of the cervix to promote drainage, and repeated penicillin-sulpha courses. There is little risk of masking syphilis in patients who are anxious to have a baby and who were infected long ago. A glycerine-gauze drain may be packed into the cervix; this helps by pressing the glands empty and by its hygroscopic action. The plug falls out in a few hours.

2. Linear cauterization has long been carried out without anaesthesia as an out-patient treatment. The results have been indifferent, and I have seen several cases where the external os has become almost completely sealed by bridging scar tissue, leaving a tiny, lateral pinhole os which would admit only the finest probe. Cauterization, to be effective, should be preceded by dilatation under pentothal anaesthesia; it can then be performed thoroughly along the length of the cervical canal and out to the margin of the erosion. This is a most effective measure and gives excellent results.

3. Artificial insemination is another method of by-passing the "cervical barrier" due to presence of some residual and intractable infection or catarrh. There is, of course, some risk of introducing infection beyond the internal os, but in actual practice this does not occur in cases already adequately treated by chemotherapy.

Salpingitis as a Cause of Infertility or Sterility.—Unilateral tubal blockage lessens fertility by more than 50 per cent., but this may be due to subliminal infection of the other tube affecting and destroying the cilia or leaving a catarrh. Bilateral blockage is almost final.

There are three stages of tubal involvement:

1. *The catarrhal stage*, which follows a menstrual period soon after infection. Examination reveals tubal tenderness close to the uterine body but no palpable mass. This is the ideal stage for the glycerine drain, which reduces the oedema and catarrh of the lumen, promotes free drainage with permeation of penicillin and sulpha drugs, and allows undamaged healing.

2. *The stage of gross salpingitis and parametritis* occurs when the infective material has spread not only right along the lumen and through the fimbriated ostium, forming a local peritonitis, but also into the cellular tissue between the layers of the broad ligament. The extension is indicated by the rising temperature and pulse, and by lower abdominal rigidity, and is confirmed by finding the swollen turgid tubes merging

in one mass into the thickened broad ligaments. This stage can be reduced by rest, penicillin, sulpha drugs, and hot douches and packs, but in healing the ostia become involved, being completely closed by fibrin and later by organized fibrous tissue; and scar tissue also pervades both tubes and parametrium. The only hope of successful resolution lies in the use of the glycerine drain immediately and short-wave electrical therapy later.

3. Stage of chronic salpingitis, resulting from long standing involvement of the tubes and pelvic peritoneum with chronic thickening and matting, is not amenable to any restorative procedure. Laparotomy and excision are indicated to remove a source of chronic ill-health.

Methods of Treatment.—The glycerine drain, advocated so strongly by Remington Hobbs twenty years ago and at one time so very popular, seems to have gone out of fashion. It finds its greatest use in stages 1 and 2, and the usual technique is as follows:

Ideally the patient is admitted to hospital for five days and the operation is performed under pentothal or gas and oxygen anaesthesia. The cervix is dilated up to size 10 Hegar at least, and a No. 10 or No. 12 Jacques rubber catheter is inserted and fixed to the cervix with one stout silk worm or nylon stitch. About 5 or 10 ml. of sterile glycerine (depending on the size of the uterine cavity or the amount that runs back beside the tube) are run in from a syringe. The catheter is closed by a spigot. The glycerine seeps out slowly from the cervix and is replaced two or three times daily until the fifth day. The patient is nursed in the Fowler position and allowed up on the fifth day for a hot bath when she can usually pull the catheter out herself. If severe colicky pain is caused by the injections of glycerine, codeine, gr. $\frac{1}{2}$, or 2 of tab. codeine co., are given twenty minutes before.

If the patient cannot be admitted to hospital, the glycerine drain is performed early in the day and more glycerine is run in at 5 p.m. before the patient is sent home. The catheter in such cases is not tied in but is reinserted for the second injection.

Resolution can undoubtedly be helped by short-wave electrical therapy repeated on alternate days for six to ten treatments. Great care must be exercised at the commencement, when five minutes is an adequate time. But too much faith must not be put in its powers of resolution, nor can it restore cilia to the Fallopian tubes.

Finally some months later comes the testing for tubal patency, first by gas insufflation which, if negative or inconclusive, is followed by salpingography; for this I use "neohydriol"—a thin, opaque medium which is absorbed fairly readily and does not leave any residual pools. If the tubes are found blocked at the fimbriated ends or mid-way, salpingolysis by open operation with or without prior peritoneoscopy (used extensively by Raoul

Palmer in Paris) may be tried, but the results as given at the Dublin Gynaecological Congress were not encouraging even in the most expert hands. Recently a low-melting-point wax plug has been used to keep the reconstituted or new ostium open. This is later dispersed by diathermy or fever-producing injections, and some good results have been reported.

Tubal anastomosis has also been tried with occasional success. The blocked portion of tube is excised and the tube reconstituted over a stout nylon suture which is threaded through ampulla and uterine body till it protrudes from the cervix, whence it can be removed at a later date—about ten days after the operation.

In some cases where the block is found to be at the uterine end a successful result (followed by a pregnancy) has been achieved by repeated glycerine drains. There should be little palpable induration of the tubes or parametrium in such cases.

A patient aged 27 years was first seen on Sept. 16, 1947. She had been married two years without becoming pregnant; there had been one pregnancy five years previously with another partner. Apart from a thickened and tender right Fallopian tube nothing abnormal was found. A hystero-gram taken on Sept. 23 showed non-patency of both tubes. Another hystero-gram on Oct. 21 under pressure confirmed non-patency. Non-oily contrast medium was used to avoid the risk of embolism at 250 mm. Hg pressure. On Nov. 18 a glycerine drain was performed, and on Dec. 9 gas insufflation (both tubes patent); the right at 110 mm. Hg pressure, the left 140 mm. Hg. It was arranged to take a repeated hystero-gram on Jan. 6, but by that date the patient's period was eleven days overdue so the arrangement was cancelled.

On Jan. 12 the Aschheim-Zondek test was positive, and on Sept. 13 a baby was born weighing 10 lb. 2 oz.

Trichomonas vaginitis.—In florid cases the acuteness of the condition and the amount of repulsive discharge make the patient seek advice long before it could be a cause of infertility; but chronic cases do turn up at sterility clinics. The history reveals that the cause of the childless marriage is difficulty of entry and pain during intercourse, and examination reveals chronic granular trichomonal vaginitis affecting principally the fornices. The introitus also shows chronic simple inflammation. In many of these cases the condition has been present for even five years.

Conclusion

Many of the procedures advocated in this article are simple and suitable for clinic practice, especially where beds are (as they should always be) available. Other procedures are more elaborate and should be undertaken only by specialists.